



UNITED STATES PATENT AND TRADEMARK OFFICE

APL

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/420,798	10/19/1999	YOSHIHIKO IMAMURA	SON-1661	3308

7590 09/22/2003

RONALD P KANANEN ESQ
RADER FISHMAN & GRAUER
THE LION BUILDING
1233 20TH STREET NW SUITE 501
WASHINGTON, DC 20036

[REDACTED] EXAMINER

OPIE, GEORGE L

[REDACTED] ART UNIT [REDACTED] PAPER NUMBER

2126

DATE MAILED: 09/22/2003

9

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.	09/420,798	Applicant(s)	Imamura
Examiner	George L. Opie	Art Unit	2126

PRG

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136 (a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).

Status

- 1) Responsive to communication(s) filed on 14 July 2003.
- 2a) This action is FINAL. 2b) This action is non-final.
- 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) Claim(s) 23-44 is/are pending in the application.
 - 4a) Of the above claim(s) is/are withdrawn from consideration.
- 5) Claim(s) is/are allowed.
- 6) Claim(s) 23-44 is/are rejected.
- 7) Claim(s) is/are objected to.
- 8) Claim(s) are subject to restriction and/or election requirement.

Application Papers

- 9) The specification is objected to by the Examiner.
- 10) The drawing(s) filed on is/are objected to by the Examiner.
- 11) The proposed drawing correction filed on is: a) approved b) disapproved.
- 12) The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. § 119

- 13) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d).
 - a) All b) Some * c) None of the CERTIFIED copies of the priority documents have been:
 1. received.
 2. received in Application No. (Series Code / Serial Number) .
 3. received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

- 14) Acknowledgement is made of a claim for domestic priority under 35 U.S.C. & 119(e).

Attachment(s)

14) <input type="checkbox"/> Notice of References Cited (PTO-892)	17) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s). <input type="checkbox"/>
15) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)	18) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)
16) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449) Paper No(s) <input type="checkbox"/>	19) <input type="checkbox"/> Other: _____

Art Unit: 2126

DETAILED ACTION

This Office Action is responsive to Applicant's Amendment B, filed 14 July 2003, in which claims 1-22 were cancelled and new claims 23-44 were added for examination.

1. Request for copy of Applicant's response on floppy disk:

Please help expedite the prosecution of this application by including, along with your amendment response in paper form, an electronic file copy in WordPerfect, Microsoft Word, or in ASCII text format on a 3½ inch IBM format floppy disk.

Please include all pending claims along with your responsive remarks. Only the paper copy will be entered -- your floppy disk file will be considered a duplicate copy. Signatures are not required on the disk copy. The floppy disk copy is not mandatory; however, it will help expedite the processing of your application. Your cooperation is appreciated.

2. Claim Rejections - 35 U.S.C. § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. § 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless

(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for patent, or

3. Claims 23 and 28-29 are rejected under 35 U.S.C. § 102(a) as being anticipated by the Admitted Prior Art (APA) background of Application, pages 1-7.

As to claim 23, the APA teaches a "multiprocessor which is comprised of a plurality of CPUs connected via a common bus and executes a plurality of mutually independent programs in parallel", Application-page3 wherein a first processor element "processor element 111", page4 of said plurality of processor elements for executing a first user program "instruction codes ... prg A are successively executed", page5 of a plurality of user programs, said first processor element executes a wait instruction, said wait instruction suspends processing of said first user program "when an instruction code 'wait (Prg D)' is executed in the processor element 111, the processing ... enters a synchronization waiting state", page7 and

a second processor element "processor element 114", p7 of said plurality of processor elements for executing a second user program "Prg D" of said plurality of user programs, said second processor element executes a wait release instruction "code 'end' of the subprogram Prg D" said wait release instruction commands said first processor element to resume said processing of said first

Art Unit: 2126

user program "message indicating the completion of the subprogram Prg D is notified to the processor element 111 . . . As a result, the processor element 111 releases the synchronization waiting state and executes the next instruction code."

As to claims 28-29, see the background specifics on the instruction code "end" executed in the processor elements 111 through 114 on page 7 of the APA.

4. **Claim Rejections - 35 U.S.C. § 103**

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 23-44 are rejected under 35 U.S.C. § 103(a) as being unpatentable over the Admitted Prior Art (APA) background of Application, pages 1-7 in view of Dewa et al. (U.S. Patent 5,634,071).

As to claim 23, the APA teaches a "multiprocessor which is comprised of a plurality of CPUs connected via a common bus and executes a plurality of mutually independent programs in parallel", Application-page3 wherein a first processor element "processor element 111", page4 of said plurality of processor elements for executing a first user program "instruction codes ... prg A are successively executed", page5 of a plurality of user programs, said first processor element executes a wait instruction, said wait instruction suspends processing of said first user program "when an instruction code 'wait (Prg D)' is executed in the processor element 111, the processing ... enters a synchronization waiting state", page7 and a second processor element "processor element 114", p7 of said plurality of processor elements for executing a second user program "Prg D" of said plurality of user programs, said second processor element executes a wait release instruction "code 'end' of the subprogram Prg D" said wait release instruction commands said first processor element to resume said processing of said first user program "message indicating the completion of the subprogram Prg D is notified to the processor element 111 . . . As a result, the processor element 111 releases the synchronization waiting state and executes the next instruction code."

The APA does not explicitly disclose the additional limitations detailed below.

Art Unit: 2126

Dewa teaches the "synchronous status information '0' is transmitted to all other processors . . . and the instruction processing element 8 . . . executes those processes that remain unexecuted, pages 12-13 which corresponds to the other processing means executes a next instruction without suspending processing after it executes said wait release instruction.

It would have been obvious to combine Dewa's teaching with the APA because the status "0" signal provides an indication to release/reset a process while the processor element 8 continues executing code that need not wait on other processes; in other words, this function of Dewa shows that its system will keep its processors executing tasks/instructions to maximize efficiency after sending requisite state control signals, thereby optimizing resources/performance.

As to claim 24, see the APA's (page 7) teachings of the processor element 111 entering a "wait" state and processor element 114 executes an "end" instruction which results in notification of processor 111 to release its waiting state.

As to claim 25, the APA teaches a "multiprocessor which is comprised of a plurality of CPUs" using VLSI on a *single chip for parallel processing*.

As to claim 26, the APA (page 6) teaches the processor executing instructions without suspending program execution after signaling a "release" instruction.

As to claim 27, the APA (page 3) teaches parallel processing programs with "communication between processes" by sending messages over a common bus.

As to claims 28-29, see the background details on the instruction code "end" executed in the processor elements 111 through 114 on page 7 of the APA.

As to claims 30-31, the APA teaches a first storage means "common memory 15", p4 and second storage means "local memory 32" that correspond to the processing means "processor elements 111 to 114", p5 reading programs from the first storage means "user programs read from the common memory ... and successively supplies instruction codes of the user program stored in the local memory 32 to the processor core 31 for execution.", page 4.

As to claim 32, the APA teaches the system "reads the user programs stored in the common memory 15 into the local memories 32", page 5, until the "end" instruction terminates the process.

As to claim 33, Dewa teaches the "processing element 8" recognizes that the "synchronous indicating register 14" has provided the status information, and from this, it would have been obvious to provide the recited process for executing the wait release as claimed. (cf Dewa page 9).

Art Unit: 2126

As to claim 34, the APA teaches "instruction code 'gen(Prg_B)' is executed in the processor element 111, . . . Then the subprogram Prb B stored in the common memory 15 is read into the local memory 32 of the processor element 112" pp5-6.

As to claim 35, the APA (page 5) teaches an "arbiter 16" that corresponds to the program execution assigning means and its claimed functions.

As to claims 36-42, note the rejections of claims 23-24, 26, 28, 33 and 35 respectively. Claims 36-42 are the same as claims 23-24, 26, 28, 33 and 35, except claims 36-42 are method claims and claims 23-24, 26, 28, 33 and 35 are apparatus claims.

As to claim 43, see the discussion of claim 23 supra. Claim 43 is functionally equivalent to claim 23, but for the limitation that the other processing means enters a waiting state when executing the release instruction, which would have been an obvious variation from the claim 1 recitations. Having the other processor pause for synchronization when release the wait of the first process would naturally have flowed from Dewa's parallel process coordination teachings, page 9.

As to claim 44, note the rejection of claim 26 above. Claim 44 is the same as claim 26, except claim 44 is a computer program product claim and claim 26 is a method claim.

6. Response to Applicant's Arguments:

Applicant's remarks have been considered but are deemed to be moot in view of the new rejections necessitated by Applicant's new claims.

7. THIS ACTION IS MADE FINAL.

A SHORTENED STATUTORY PERIOD FOR RESPONSE TO THIS FINAL ACTION IS SET TO EXPIRE THREE MONTHS FROM THE DATE OF THIS ACTION. IN THE EVENT A FIRST RESPONSE IS FILED WITHIN TWO MONTHS OF THE MAILING DATE OF THIS FINAL ACTION AND THE ADVISORY ACTION IS NOT MAILED UNTIL AFTER THE END OF THE THREE-MONTH SHORTENED STATUTORY PERIOD, THEN THE SHORTENED STATUTORY PERIOD WILL EXPIRE ON THE DATE THE ADVISORY ACTION IS MAILED, AND ANY EXTENSION FEE PURSUANT TO 37 C.F.R. □ 1.136(a) WILL BE CALCULATED FROM THE MAILING DATE OF

Art Unit: 2126

THE ADVISORY ACTION. IN NO EVENT WILL THE STATUTORY PERIOD FOR RESPONSE EXPIRE LATER THAN SIX MONTHS FROM THE DATE OF THIS FINAL ACTION.

8. Contact Information:

PTO Policy for Facsimile Submissions:

- AFTER-FINAL faxes must be signed and sent to (703) 746-7238.
- OFFICIAL faxes must be signed and sent to (703) 746-7239.
- NON OFFICIAL faxes should be sent to (703) 746-7240.

All OFFICIAL faxes will be handled and entered by the docketing personnel. The date of entry will correspond to the actual FAX reception date unless that date is a Saturday, Sunday, or a Federal Holiday within the District of Columbia, in which case the official date of receipt will be the next business day. The application file will be promptly forwarded to the Examiner unless the application file must be sent to another area of the Office, e.g., Finance Division for fee charging, etc.

- All responses sent by U.S. Mail should be mailed to:
Commissioner for Patents
PO Box 1450
Alexandria, VA 22313-1450
- Hand-delivered responses should be brought to Crystal Park Two, 2021 Crystal Drive, Arlington, VA., Sixth Floor (Receptionist). All hand-delivered responses will be handled and entered by the docketing personnel. Please do not hand deliver responses directly to the Examiner.
- Any inquiry of a general nature or relating to the status of this application should be directed to the Group receptionist at (703) 305-9600.
- Any inquiry concerning this communication or earlier communications from the examiner should be directed to George Opie at (703) 308-9120 or via e-mail at George.Opie@uspto.gov. Internet e-mail should not be used where sensitive data will be exchanged or where there exists a possibility that sensitive data could be identified unless there is an express waiver of the confidentiality requirements under 35 U.S.C. 122 by the Applicant. Sensitive data includes confidential information related to patent applications.



ZARNI MAUNG
EXAMINER